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EXAMINER	
CHEA, PHILIP J	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/070,339	FEICK ET AL.	
	Examiner	Art Unit	
	Philip J. Chea	2153	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 January 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-49* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-49* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-49 have been examined.

Specification

1. The abstract of the disclosure is objected to because the language should not repeat information given in the title. Correction is required. See MPEP § 608.01(b).

2. The disclosure is objected to because of the following informalities: 37 CFR 1.74. Reference to drawings. When there are drawings, there shall be a brief description of the several views of the drawings and the detailed description of the invention shall refer to the different views by specifying the numbers of the figures, and to the different parts by use of reference letters or numerals (preferably the latter). The detailed description of the specification does not refer to any of the drawings listed in the "Brief Description of Drawings".

Appropriate correction is required.

Claim Objections

3. Applicant is advised that should independent claims 1,4,9 be found allowable, their respective dependent claims 3,6,11,15,17 will be objected to under 37 CFR 1.75 as being a substantial duplicate thereof. When two claims in an application are duplicates or else are so close in content that they both cover the same thing, despite a slight difference in wording, it is proper after allowing one claim to object to the other as being a substantial duplicate of the allowed claim. See MPEP § 706.03(k).

4. Claim 35 is objected to because of the following informalities: Note line 5, "a plurality of one or more or wide area" is apparently "a plurality of one or more wide area".

5. Claim 37 is objected to because of the following informalities: Note line 1, "plurality of one of more" is apparently "plurality of one or more".

6. Claim 38 is objected to because of the following informalities: Note line 1, "plurality of one of more" is apparently "plurality of one or more".

7. Appropriate correction is required.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 42,45 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is unclear how a first packet and a second can be the same packet. Does the Applicant mean the same type of measurement packet (e.g. packet measuring data loss, packet measuring delay)? The Examiner will interpret the "same packet" as being the same type of measuring packet (i.e. packet measuring data loss, packet measuring delay).

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1-11,13-14,16-17,21,24-28,31,34-49 are rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (US 5,793,976), herein referred to as Chen.

As per claims 9,1,4,39, Chen discloses a method for communicating data within measurement traffic, the method comprising:

sending a first plurality of one or more measurement packets over a first plurality of one or more paths, each of the first plurality of one or more paths traversing at least a portion of an internetwork (see column 7, lines 6-16, *where a plurality of management packets (i.e. measurement packets) are sent over a network to measure performance parameters such as packet delay and packet loss rate)*, and each of the first plurality of one or more measurement packets including:

information for a receiver of the measurement packet to compute measurements of performance characteristics of at least a portion of the path of the measurement packet (see column 7, lines 17-27, *where switches and routers that receive the measurement packet can use the management packet to compute performance characteristics such as packet delay and packet loss)*, data including one or more of measurement statistics, a generic communication channel, network information, and control data directing a receiver of the measurement packet to change one or more configuration parameters of the receiver (see column 7, lines 17-27, *where data including at least network information (e.g. packet delay and packet loss) is collected)*,

receiving a second plurality of one or more measurement packets over a second plurality of one or more paths, each of the second plurality of one or more paths traversing at least a portion of an internetwork (see column 7, lines 6-8, *where the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path))*, and each of the second plurality of one or more measurement packets including:

information for a receiver of the measurement packet to compute measurements of performance characteristics of at least a portion of the path of the measurement packet (see column 7, lines 17-27, *where a second path for a second user can include switches and routers that receive the measurement packet can use the management packet to compute performance characteristics such as packet delay and packet loss)*, and data including one or more of measurement statistics, a generic communication channel, network information, and control data directing a receiver of the measurement packet to change one or more configuration parameters of the receiver (see column 7, lines 17-27, *where data including at least network information (e.g. packet delay and packet loss) is collected)*.

As per claims 2,5,10, Chen further discloses that the measurements of performance characteristics include one-way measurements (see Fig. 2, *showing packet delay in a one-way direction (i.e. packet travels from node 1, to node 2, to node 3*).

As per claims 3,6,11, Chen further discloses that the data includes measurement statistics (see column 7, lines 50-57, *where the accumulation of delay and packet loss are considered measurement statistics*).

As per claims 7,21, Chen further discloses analyzing of the measurement packet based on a dynamic algorithm, the dynamic algorithm computing computed statistics on one or more of the measurements of performance characteristics of at least a portion of the path of the measurement packet (see column 7, lines 50-64, *where additional codes can be defined for dynamically monitoring other performance parameters).*

As per claims 8,26, Chen further discloses that a subset of the plurality of one or more paths is selected based at least in part on at least one of: one or more of the measurement statistics from the measurement packet and one or more of the computed statistics (see column 2, lines 5-14, *where measurement statistics can allow providers to select a subset of one of the paths to diagnose).*

As per claim 13, Chen further discloses that the measurement statistics are at least partly responsive to delay (see column 7, lines 50-57).

As per claim 14, Chen further discloses that the measurement statistics are at least partly responsive to loss (see column 7, lines 50-57).

As per claim 16, Chen further discloses that the data includes a generic communication channel (see column 9, lines 58-62).

As per claim 17, Chen further discloses that the data includes network information (see column 7, lines 17-27).

As per claim 24, Chen further discloses that the computed statistics are at least partly recomputed upon the arrival of every measurement packet (see column 7, lines 50-57).

As per claim 25, Chen further discloses that the computed statistics are at least partly on measurement statistics from the measurement packet (see column 7, lines 6-16).

As per claim 27, Chen further discloses that the subset of the plurality of one or more paths is based at least partly on the position of paths in a ranking (see column 2, lines 5-14, *where the paths that*

are troubled will be diagnosed before those paths that are working fine; that is the troubled paths are ranked higher than the working paths).

As per claim 28, Chen further discloses that the ranking is at least partly based on one or more of the measurement statistics included as data in the measurement packet (see column 7, lines 6-16).

As per claim 31, Chen further discloses that the subset of plurality of one or more paths is based at least partly on applying one or more thresholds to at least one of the measurements statistics included as data in the measurement packet (see column 1, lines 50-55, *where a QOS threshold is checked to insure users maintain a certain QOS agreement).*

As per claim 34, Chen further discloses that the plurality of one or more paths is at least partly implemented with at least one of a frame relay PVC, an ATM PVC, and MPLS (see column 1, lines 29-32).

As per claim 35, Chen further discloses that the internetwork is a plurality of one or more subnetworks, including at least one of a plurality of one or more VPNs; an overlay network; a plurality of one or more BGP autonomous systems; a plurality of one or more local area networks; a plurality of one or more metropolitan area networks; and a plurality of one or more wide area networks (see column 1, lines 29-32).

As per claim 36, Chen further discloses that the measurement packet sizes and times between measurement packets simulate the traffic pattern of a plurality of one or more applications (see column 1, lines 51-58).

As per claim 37, Chen further discloses that the plurality of one or more applications includes voice applications (see column 1, lines 51-58).

As per claim 38, Chen further discloses that the plurality of one or more applications includes video applications (see column 1, lines 24-27).

As per claim 40, Chen further discloses that the plurality of one or more devices includes a first sub-plurality of one or more devices, wherein the first sub-plurality of one or more devices sends one or more of the first plurality of one or more measurement packets (see Fig. 2, *showing how switches send the measurement packets).*

As per claim 41, Chen further discloses wherein the plurality of one or more devices includes a second sub-plurality of one or more devices, wherein the second sub-plurality of one or more devices receives one or more of a second plurality of one or more measurement packets over a second plurality of one or more paths, each of the second plurality of one or more paths traversing at least a portion of the internetwork (see column 7, lines 6-8, *where the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path))*, each of the second plurality of one or more measurement packets including:

information for a receiver of the measurement packet to compute measurements of performance characteristics of at least a portion of the path of the measurement packet (see column 7, lines 17-27, *where switches and routers that receive the measurement packet can use the management packet to compute performance characteristics such as packet delay and packet loss)*,

data including one or more of measurement statistics, a generic communication channel, network information, and control data directing a receiver of the measurement packet to change one or more configuration parameters of the receiver (see column 7, lines 17-27, *where data including at least network information (e.g. packet delay and packet loss) is collected).*

As per claims 42,45,47,49, Chen discloses that at least one of the first plurality of one or more measurement packets and at least one of the second plurality of one or more measurement packets are the same packet (see Fig. 2, showing packet measuring delay, where column 7, lines 6-8, *describes the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path)).*

As per claim 43, Chen discloses that at least one of the plurality of one or more devices receives one or more of the first plurality of one or more measurement packets (see Fig. 2).

As per claim 44, Chen discloses that the plurality of one or more devices includes a first sub-plurality of one or more devices, wherein the first sub-plurality of one or more devices receives one or more of a second plurality of one or more measurement packets over a second plurality of one or more

paths and sends one or more of the first plurality of one or more measurement packets, each of the second plurality of one or more paths traversing at least a portion of the internetwork (see column 7, lines 6-8, *where the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path), furthermore some of the same devices are traversed considering the performance parameters go to the same performance monitoring system (see column 7, lines 8-10))*, each of the second plurality of one or more measurement packets including:

information for a receiver of the measurement packet to compute measurements of performance characteristics of at least a portion of the path of the measurement packet (see column 7, lines 17-27),

data including one or more of measurement statistics, a generic communication channel, network information, and control data directing a receiver of the measurement packet to change one or more configuration parameters of the receiver (see column 7, lines 17-27).

As per claim 46, Chen further discloses that the plurality of one or more devices includes a second sub-plurality of one or more devices, wherein the second sub-plurality of one or more devices sends one or more of the first plurality of one or more measurement packets (see Fig. 2, showing packet measuring delay, where column 7, lines 6-8, *describes the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path)).*

As per claim 48, Chen further discloses that the plurality of one or more devices includes a second sub-plurality of one or more devices, wherein the second sub-plurality of one or more devices receives one or more of the second plurality of one or more measurement packets (see Fig. 2, showing packet measuring delay, where column 7, lines 6-8, *describes the measurement packets can be used to measure end-to-end QOS experienced by a user along any virtual connection implying a second plurality of one or more measurements packets and a second plurality of one or more paths (i.e. different user along a different path)).*

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

13. Claims 12,15,18,22,29-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 11 above, and further in view of Kompella et al. (US 5,892,754), herein referred to as Kompella.

As per claim 12, although the system disclosed by Chen shows substantial features of the claimed invention (discussed above), it fails to disclose that the measurement statistics are at least partly responsive to jitter.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Chen, as evidenced by Kompella.

In an analogous art, Kompella discloses a control system that receives information and measures QoS and changes controls based on the measured network parameters (see Abstract). Further, Kompella discloses that one of the measurement statistics is at least partly responsive to jitter (see column 7, lines 44-49).

Given the teaching of Kompella, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Chen by employing jitter measurements, such as disclosed by Kompella, in order to gather measurements to adjust the flow control of QoS.

As per claim 15, Kompella further discloses control directing a receiver of the measurement packet to change one or more configuration parameters of the receiver (see column 8, lines 40-50).

As per claim 18, Chen in view of Kompella further disclose that the data is embedded in multiple measurement packets (see Chen, Figs. 2,3,4) that are sent over multiple paths for improved communication performance, including redundancy and shorter transmission time (see Kompella column

5, lines 21-34, *where redundancy and possible shorter transmission time are implied with the use of multiple paths).*

As per claim 22, Kompella further discloses that the algorithm computes averages of the measurements, including at least one of a moving average, an average based on the Robbins-Moro estimator, a window-based average, and a bucket-based average (see column 5, lines 62-65, describing a window based average).

As per claim 29, Kompella further discloses that the subset of the plurality of one or more paths is based at least partly on a probability associated with each path of the plurality of one or more paths (see column 5, lines 60-65 and column 6, lines 20-25, *where the selected paths are based on a probability because the QOS parameters are averaged, which implies a probable connection to satisfy the QOS*).

As per claim 30, Chen in view of Kompella further discloses that the probability of each path of the plurality of one or more paths is at least partly based on one or more of the measurement statistics included as data in the measurement packet (see Kompella column 5, lines 62-65, describing the collection of measurement statistics and Chen column 7, lines 17-27, describing the use of a measurement packet).

14. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 9 above, and further in view of Ofeck et al. (US 6,385,198), herein referred to as Ofeck.

Although the system disclosed by Chen shows that a clock referred to by a sender of the measurement packet and a clock referred to by the receiver of the measurement packet are synchronized (see column 3, lines 27-38, *describing how synchronized clocks would allow an end-point to measure the a delay time)*, it fails to disclose the synchronization method including at least one or more of GPS, NTP, IRIG, and NIST).

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Chen, as evidenced by Ofeck.

In an analogous art, Ofeck discloses a system for passing messages between switches (see Abstract), where the switches are synchronized using GPS (see column 3, lines 18-26).

Given the teaching of Ofeck, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Chen by employing synchronization of routers using GPS, such as disclosed by Ofeck, in order to get a common time reference for switches.

15. Claims 19,23,32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen as applied to claim 9 above, and further in view of Vaid et al. (US 6,078,953), herein referred to as Vaid.

As per claim 19, although the system disclosed by Chen shows substantial features of the claimed invention (discussed above), it fails to disclose that the measurement packets are at least one of encrypted and digitally signed.

Nonetheless, these features are well known in the art and would have been an obvious modification of the system disclosed by Chen, as evidenced by Vaid.

In an analogous art, Vaid discloses a system that can receive packets and measure the quality of service related to those packets (see column 16, lines 18-21 and lines 29-38, *describing how incoming packets are measured based on measurement statistics*). Further showing that the measurement packets are at least one of encrypted and digitally signed (see column 17, lines 32-36, *where the packets can be using IPSEC which inherently suggests an encrypted packet*).

Given the teaching of Vaid, a person having ordinary skill in the art would have readily recognized the desirability and advantages of modifying Chen by employing encrypted packets, such as disclosed by Vaid, in order to measure performance characteristics through firewalls.

As per claim 23, Vaid further discloses that the algorithm is at least partly specified through an external API (see column 12, lines 51-56, *showing that the measurement algorithm is partly specified though an API*).

As per claim 32, Vaid further discloses that the measurement packets at least partly rely on UDP (see column 17, lines 42-48).

As per claim 33, Vaid further discloses that at least one of the plurality of paths is at least partly implemented with at least one of a GRE tunnel and an IPSEC tunnel (see column 17, lines 32-36).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Philip J. Chea whose telephone number is 571-272-3951. The examiner can normally be reached on M-F 6:30-4:00 (1st Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Burgess can be reached on 571-272-3949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Philip J Chea
Examiner
Art Unit 2153

PJC 11/8/07

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